

Victoria University of Wellington Carbon Footprint 2020

Methodology

As part of our Zero Carbon Plan, we compile our greenhouse gas emissions inventory every year following the Greenhouse Gas Protocol. In 2018, we engaged AECOM to conduct a third-party review of our emissions reporting practice (specifically including a review of our organisational boundary and the sources of emissions we include) to ensure we kept in line with industry best practice. The 2020 greenhouse gas emissions inventory has been independently assessed by Catalyst Ltd, who have confirmed that the methodology and measurement is consistent with the ISO 14064-1 standard and is appropriate for the scope of the calculation performed.

Activity data was sourced from relevant suppliers, via third party agents, or from internal financial records. The majority of emission factors were sourced from “Measuring Emissions: A Guide for Organisations – 2020 Summary of Emission Factors” - the latest guidance published by the Ministry for the Environment.

Carbon Footprint Boundary

The operational control approach was adopted to determine the organisational boundaries for the carbon footprint. All Victoria University of Wellington business units are included in the boundary. Wellington Uni Ventures subsidiaries and Campus Living Villages are excluded.

The operational boundary **includes an estimated 95% of all Scope 1 & 2 emissions**. The key exclusion is refrigeration in student accommodation that was not possible to measure or accurately estimate. Emissions associated with chemical processes have been investigated and considered minor.

Key Scope 3 emission sources included in the boundary are:

- Paper consumed
- Water consumed and wastewater
- Energy used in student accommodation not operated by VUW
- Transmission & distribution losses
- Student commute and intercampus travel
- Waste disposal
- Staff business travel and commute
- Energy use in campus areas not operated by VUW (leased from third parties)
- Energy use in campus areas operated by tenants

Scope 3 emissions are indirect emissions that result from activities undertaken by third parties for the benefit of Victoria University. They have been selected based on size, ability to measure, opportunity to reduce and reporting boundary of other universities. The completeness of the scope 3 boundary is considered very good.

Key exclusions are emissions associated with capital projects, students' long-distance travel from their hometown and emissions associated with the University Foundation Investment portfolio. They have been excluded due to lack of ability to measure them in a meaningful way. Regardless of the fact that those emissions are excluded from the carbon boundary, Victoria University of Wellington continues to actively look for ways to reduce them, for example by measuring fuel use by main contractors and decarbonising their investment portfolio.

Results

The total carbon footprint for 2020 has been estimated at **9,845 tonnes of CO₂e**.

Air travel was previously the largest source of GHG emissions but with the pandemic closing our borders, that has now shrunk to 10%. Natural gas consumption is now the largest emission source (36%) followed by electricity consumption (25%) and commuting (21%) which includes working from home. The contribution of different emission sources is presented below.

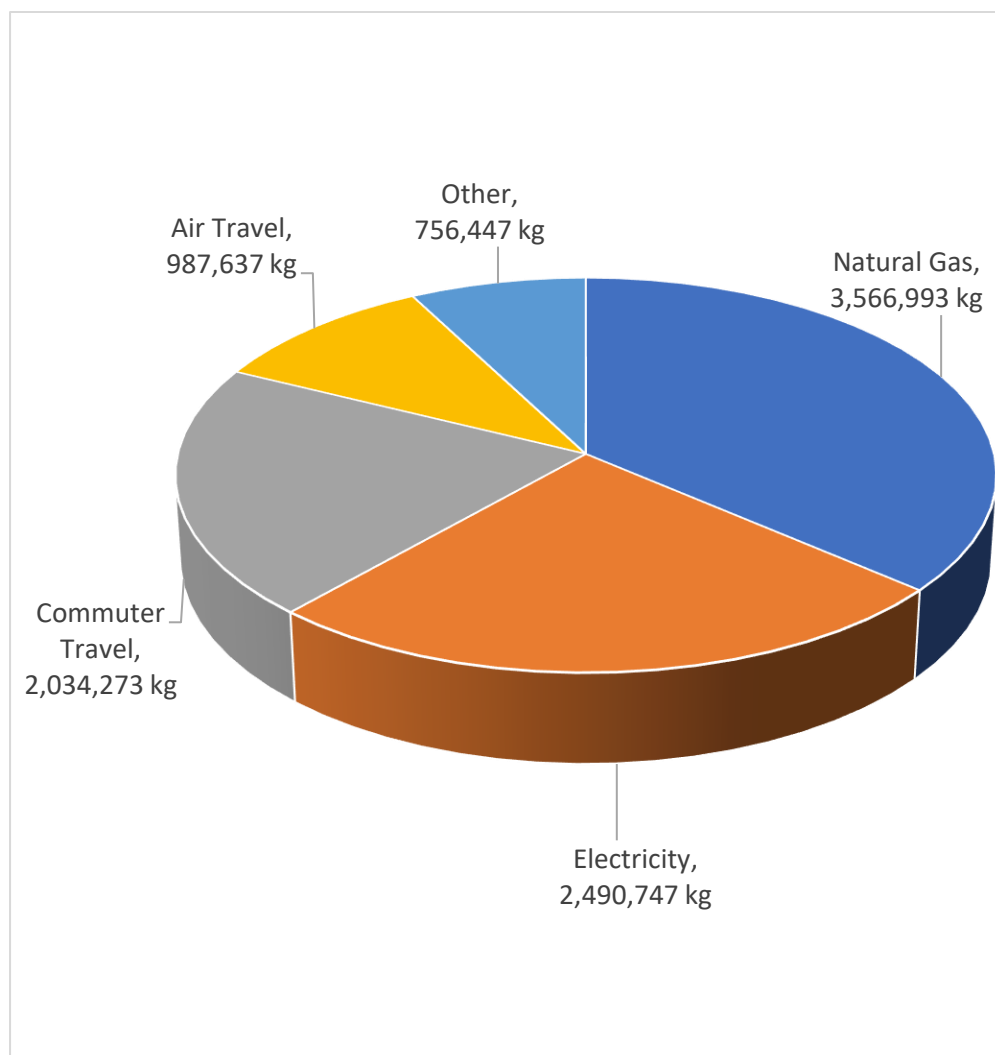


Figure 1: Emissions by Source

2020 is the first year we have purchased carbon offsets for our air travel, so our net emissions were 8,857 tonnes.

GHG Protocol reporting category	Activity/ Emission source	Consumption		Emission Factor	kg CO ₂ e
Scope 1					
Stationary combustion	Diesel Generators - campus and operated accommodation.	3,411	Litres	2.66 kg/L (MfE)	9,073
	Natural Gas - campus and offices	11,923,301	kWh	0.195 kg/kWh (MfE)	2,310,407
	Natural Gas - student accommodation (VUW owned and operated)	4,088,816	kWh	0.195 kg/kWh (MfE)	797,319
Mobile combustion	Petrol- Fleet vehicles	11,256	Litres	2.45 kg/L (MfE)	27,577
	Diesel - Fleet vehicles	9,130	Litres	2.69 kg/L (MfE)	24,560
Fugitive emissions	Refrigerants (HFC) - Campus	178	kg	varies by refrigerant type (MfE)	301,851
Scope 2					
Electricity	Campus and offices, including assets leased to third parties but operated by VUW	15,492,780	kWh	0.101 kg/kWh (MfE)	1,553,288
	Student accommodation (operated by VUW)	3,034,043	kWh	0.101 kg/kWh (MfE)	306,438

GHG Protocol reporting category	Activity/ Emission source	Consumption		Emission Factor	kg CO ₂ e
Scope 3					
1. Purchased goods & services	Print and paper	40.20	tonnes	452 kg/T (Australian Paper)	1,490
	Water (campus)	84,588	m ³	0.0313 kg/m ³ (MfE)	2,622
	Water (accommodation)	185,179	m ³	varies by Hall based on metering (MfE)	5,741
	Student accommodation (not owned or operated by VUW) - electricity	990,949	kWh	0.1051 kg/kWh (MfE)	108,707
3. Fuel and energy related activities	Transmission and distribution losses for electricity consumed	19,846,723	kWh	0.0074 kg/kWh (MfE)	172,666
	Transmission and distribution losses for natural gas consumed	17,231,849	kWh	0.0228 kg/kWh (MfE)	206,782
4. Upstream transportation and distribution	Student commute	26,052,203	km	varies by transport mode	1,415,414
	Student intercampus travel	48,411	km	0.039 kg/pkm (derived from MfE)	5,228
5. Waste generated in operations	Landfill Waste	395,442	kg	0.381 kg/kg (MfE)	130,199
	Waste water (campus)	84,588	m ³	0.447 kg/m ³ (MfE)	38,657
	Waste water (accommodation)	185,179	m ³	0.447 kg/m ³ (MfE)	84,627
6. Business travel	Taxi	254,030	\$	0.075 kg/\$ (MfE)	17,782
	Rentals	50,151	km	varies by vehicle size (MfE)	30,546
	Public transport (staff)	6,076	km	0.039 kg/pkm (derived from MfE)	656
	VUW funded air travel	11,122,566	km	varies by distance, class and engine type (MfE), does not include radiative forcing	987,637
	Private mileage	60,310	km	0.268 kg/km (MfE)	15,982
7. Employee commuting	Public & active transport	3,996,081	km	varies by mode (MfE)	159,759
	Private vehicle	2,060,916	km	varies by mode (MfE)	459,100
8. Upstream leased assets	Campus spaces leased from third party	876,457	kWh	0.1051 kg/kWh (MfE)	96,147
13. Downstream leased assets	Office and campus space owned by VUW but operated by tenants	2,539,632	kWh	0.1051 kg/kWh - electricity and 0.19728 kg/kWh - gas (MfE)	397,278
Offsets					987,637